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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER	
NINO, ADOLFO	
ART UNIT	**PAPER NUMBER**
2831	

DATE MAILED: 10/05/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/791,876	SUDA, YUSHI	
	Examiner	Art Unit	
	Adolfo Nino	2831	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *Application filed on 3/4/04*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) 1-5 is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) 1-5 is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on 04 March 2004 is/are: a)☐ accepted or b)☒ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date 3/4/04.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

Drawings

Figures 17-19 should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). Corrected drawings in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.121(d)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the "an insulative adhesive agent....applied on to the spaces (spaces are between the electrodes)" (Claim 1) must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate

changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Specification

The disclosure is objected to because of the following informalities:

Page 1, paragraphs 2-3 are replete with grammatical errors, i.e. "...to provide a various kinds of circuit modules."

Appropriate correction is required.

Claim Objections

Claim 2 is objected to because of the following informalities:

Claim 2, line 10, "an" should be ---a---.

Appropriate correction is required.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claim 1 is rejected under 35 U.S.C. 102(e) as being anticipated by Kumakura et al. (US 6,592,783 B2). Kumakura et al. disclose an electronic component (figs. 2, 3) for connecting a plurality of electrodes, comprising: an insulative base (21) having a plurality of electrodes (22) and spaces therebetween (figs. 2, 3), an anisotropic conductive adhesive agent (3 on fig. 2; 2 on fig. 3) applied on to the electrodes (fig. 2), an insulative adhesive agent (2 on fig. 2; 3 on fig. 3), having the same curing condition as a curing condition of the anisotropic conductive adhesive agent (col. 5), applied on to the spaces (figs. 2, 3), wherein each of the anisotropic conductive adhesive agent and the insulative adhesive agent is temporarily cured (col. 5).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 2-5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kumakura et al. (US 6,592,783 B2) in view of Kinsman et al. (US 6,634,098 B1).

Regarding claim 2, Kumakura et al. disclose an electronic component (figs. 2, 3) for connecting a plurality of electrodes, comprising: a flip chip piece (10), composed of a base (not marked, but clearly seen in figs. 2-3) having a plurality of electrodes (not marked, but clearly seen in figs. 2-3) of a semiconductor element arranged on a back surface (figs. 2-3), an anisotropic conductive adhesive agent (3 in fig. 2; 2 in fig. 3) applied or screen-printed on the electrodes of the base of the chip piece (fig. 3), an bonding surface located on a circumference of the chip piece (figs. 2-3), and an insulative adhesive agent (2 in fig. 2; 3 in fig. 3), having the same curing condition as a curing condition of the anisotropic conductive adhesive agent (col. 5), applied or screen-printed on to the bonding surface, wherein each of the anisotropic conductive adhesive agent and the insulative adhesive agent is press-heated for a predetermined time to temporarily be cured (col. 5), **but Kumakura et al. do not disclose** an insulative chip cover with a radiating portion and having a housing portion on a lower surface thereof, wherein the flip chip is accommodated in the housing portion, and a bonding surface located on a lower surface of the insulative chip cover. Kinsman et al. teach that it is known to provide an insulative chip cover with a radiating portion and having a housing portion on a lower surface thereof wherein a flip chip is accommodated and having a bonding surface located on a lower surface of the insulative chip cover as set forth at column 5, lines 55-57 and column 6, lines 50-51 and column 7, lines 1-18. It would have been obvious to one having ordinary skill in the art at the time the invention was made to provide an insulative chip cover, with a radiating portion and having a housing portion on a lower surface thereof wherein the flip chip of

Kumakura et al. would be accommodated and having a bonding surface located on a lower surface of the insulative chip cover, to the flip chip of Kumakura et al., as taught by Kinsman et al. in order for the cover to exert an adequate downward force on the flip chip and create a better electrical contact and to protect the flip chip from external mechanical stress.

Regarding claim 3, the modified Kumakura et al. disclose an electronic component for connecting a plurality of electrodes according to claim 2, wherein the radiating portion (col. 7, lines 1-18 of Kinsman et al.) is composed of an opening portion provided on at least one end surface of the chip cover and communicated with exterior of the chip cover (Kinsman et al. at col. 7, lines 1-18 read that it is preferably for the lip 432 of the cover 430 to be flush with the top recessed 428 of the device 420, since it reads "preferably", then it is implicitly understood that the cover 430 could have an opening portion on at least one end surface in order to help dissipate the heat emanated from the flip chip since the lid is made from an insulative material).

Regarding claim 4, the modified Kumakura et al. disclose an electronic component for connecting a plurality of electrodes according to claim 2, wherein the insulative adhesive agent has a similar temperature property as that of the anisotropic conductive adhesive agent having a property of being active to a heating temperature and changed from a temporarily cured state to a cured state (col. 5 of Kumakura et al.).

Regarding claim 5, Kumakura et al. disclose a method of mounting electronic component for connection of a plurality of electrode (figs. 2-3), comprising the steps of: providing a flip chip piece (10) having a semiconductor element with a plurality of

electrodes arranged in a planar fashion (figs. 2-3), applying or screen-printing an anisotropic conductive adhesive agent (2 in fig. 3) to a plurality of electrodes provided on a base of the chip piece (fig. 3), and applying or screen-printing an insulative adhesive agent (3 in fig. 3) having the same curing condition as that of the anisotropic conductive adhesive agent to an bonding surface of the chip cover (col. 5), heat-pressing the anisotropic conductive adhesive agent and the insulative adhesive agent to temporarily curing the anisotropic conductive adhesive agent and the insulative adhesive agent to thereby produce a predetermined electronic component (col. 5), providing the electronic component in position on a circuit board having substrate electrodes arranged to be aligned with the electrode of the chip piece to provide a predetermined positioning of the electrodes and the substrate electrodes (fig. 3), and mounting a crimping tool on the flip chip and lowering the crimping tool as the above-mentioned two types of the adhesive agents are being hot melted to press the flip chip on to the circuit board for a predetermined time to electrically connect the aforementioned two types of electrodes with each other (col. 5), **but Kumakura et al. do not disclose** an chip cover wherein a housing portion is provided on a lower surface of the chip cover made of an insulative material and having a radiating portion, and accommodating the flip chip piece into the chip cover, hence the crimping tool would be mounted on the chip cover and not directly on the flip chip. Kinsman et al. teach that it is known to provide an insulative chip cover with a radiating portion and having a housing portion on a lower surface thereof wherein a flip chip is accommodated as set forth at column 5, lines 55-57 and column 6, lines 50-51 and column 7, lines 1-18. It

would have been obvious to one having ordinary skill in the art at the time the invention was made to provide an insulative chip cover, with a radiating portion and having a housing portion on a lower surface thereof wherein the flip chip of Kumakura et al. would be accommodated to the flip chip of Kumakura et al., as taught by Kinsman et al. in order for the cover to exert an adequate downward force on the flip chip and create a better electrical contact and to protect the flip chip from external mechanical stress.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Mitani et al. (US 6,512,183 B2) disclose an electronic component. Imasu et al. (US 6,461,896 B1) disclose a process for mounting electronic device. Schoenthaler (US 5,162,613) discloses an integrated circuit. Yoshida et al. (US 6,246,013 B1) disclose a surface mounting structure. Hacke et al. (US 6,504,104 B2) disclose a flexible wiring. Kameda et al. (US 6,538,896 B2) disclose a surface mount type. Pasternak et al. (US 6,770,822 B2) disclose packages and methods for a high frequency device. Chan (US 6,629,363 B1) discloses a mechanical attaching process. Chung (US 6,717,819 B1) discloses a solderable flexible adhesive. Sprietsma et al. (US 6,288,906 B1) disclose a multiple layer printed circuit board disclosing the use of openings to dissipate heat.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Adolfo Nino whose telephone number is (571) 272-1981. The examiner can normally be reached on M-F (7:30-5:00).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Dean A Reichard can be reached on (571) 272-2800 ext. 31. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

AN

/Dean A. Reichard/ 9/30/04
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